Formal Objection to Draft Environmental Permit

Cloughton 2 Wellsite, Burniston | EPR/YP3623LC/A001

Submitted to	Environment Agency, Regulated Industry Team
Submitted by	Daniel Nye, independent citizen researcher
Date	6 August 2026
Contact details	Supplied with the covering email
Supporting archive	https://nedarchive.org
Version	1.1 - revised following standards and incident-derived failure-mode review
Companion documents	Environmental Standards Gap Assessment v1.1; Consultation Addendum v1.1

Summary of objection

I object to the grant of the permit in its present form. The application contains genuine controls, but decisive baseline, geological, hydrogeological and operational plans remain deferred; the site-specific seismic-monitoring architecture is not yet defined; important air and waste controls depend on assumed source terms or nominal performance rather than measured operating evidence; off-site waste suitability and final fate are not demonstrated; and the monitoring domains do not yet operate as one system capable of reconstructing transient events or following material across containment boundaries, facilities and environmental phases. The amendments requested below do not presume that harm will occur. They are proportionate conditions for making the permit scientifically testable, publicly reviewable and operationally auditable.

1. Scope and relevance of the supporting evidence

Preston New Road is not presented as a geological analogue that predicts an outcome at Cloughton 2. Its relevance is procedural and empirical: it shows how monitoring and response systems can behave when observations arise outside fixed monitoring points, between scheduled sampling intervals, across regulatory remits, below established thresholds, or through pathways that were not represented in the original model.

The principal supporting paper remains Preston New Road: Technical Assessment of Hydrogeological Risk, Monitoring, and Governance Limits, v1.1.1 (July 2026). The revised submission is also supported by Environmental Monitoring and Assurance at the Cloughton 2 Wellsite: A Comparative Assessment of UK Legal Requirements, European Environmental Standards and Internationally Recognised Technical Practice, v1.1, and its consultation addendum. Those documents include a standards crosswalk and an incident-derived failure-mode review covering seismic monitoring, drilling-return gas, flare performance, produced-water treatment, waste transfer, mobile contamination pathways and final environmental fate.

The companion assessment distinguishes binding UK requirements from EU-derived domestic provisions, current EU comparators and international technical practice. This objection does not present every good-practice measure as an existing statutory duty. It asks the Environment Agency to use the permit and its pre-operational conditions to make the proposed assurance system capable of testing the claims on which the decision relies.

Detection-envelope principle
Even where the foundation of knowledge is strong, assurance depends on a detection envelope wide enough to admit the relevant signal, a temporal and analytical filter fine enough to preserve it, and an escalation route that allows captured evidence to revise the working model.

2. Material information is deferred beyond the present consultation

This is the second Environment Agency consultation on this permit application. During the earlier application-stage consultation, the response period was extended following concerns about the completeness and accessibility of the submitted information. Additional material was subsequently published, including a chemical inventory that had previously been absent.

That history is directly relevant to the draft-decision consultation. Several matters central to the actual detection and control system remain for later written approval after the principal permit decision:

- PO 01a-b: the complete groundwater monitoring design, formations, parameters, frequency, interpretation method, trigger levels and investigation procedure are submitted after grant; monitoring may begin only three months before construction of the exploration well.
- PO 05: the Leak Detection and Repair Plan, including the component inventory, survey method, detection capability, repair and verification arrangements, is not part of the consulted technical design.
- PO 06: the updated Surface Water Management Plan, including tanker-loading procedures, containment details and the analytical schedule for ditch water, is deferred.
- PO 07: the Waste Gas Management Plan is subject to later review before additional testing or production, when actual gas and operating information may materially alter the assessed source term and selected control.
- PO 08: the final Hydraulic Fracturing Plan, including faulting, stress, induced-seismicity assessment, fracture-control methods, seismic monitoring and post-fracturing reporting, is deferred until after drilling.
- PO 09: the confirmed target depths and subsurface mining-waste-facility extent are established after construction of the wellbore.
- Accident management: no single site-specific Accident and Environmental Event Plan is included; the draft decision relies on measures distributed across multiple documents and authorities.

I recognise that pre-operational conditions prevent specified activities from commencing until the Agency has approved the required information. The concern is that the public is presently asked to comment on an assurance architecture whose decisive sensor placement, source terms, thresholds, performance criteria and integration rules are not yet visible. Where later information materially changes the assessed risk envelope, publication and an appropriate opportunity for further representations should remain available.

3. Baselines must precede disturbance and characterise relevant variability

Groundwater and surface water. A minimum three-month groundwater record represents only one seasonal window. The Agency should clarify whether site clearance, excavation, drainage alteration, cellar construction or imported aggregate placement can occur before the monitoring period. Unless existing site-specific evidence already characterises the annual range, groundwater level and chemistry, rainfall, nearby drains, springs, ponds and Burniston Beck should be considered over a complete hydrological cycle before disturbance.

Air. The Air Quality Monitoring Plan proposes three baseline rounds at two locations selected later. Most parameters are four-week passive averages; methane "continuous monitoring" is a 30-minute mobile perimeter walk. These methods can contribute to baseline characterisation but cannot by themselves reconstruct a short release, determine its operational source, or distinguish repeated episodes from a continuous low-level condition.

Radiological condition. The Waste Management Plan recognises possible NORM in formation water and equipment and provides operational controls. It does not establish a pre-development receiving-environment baseline or a decision rule for characterising radon in representative gas. A proportionate baseline should be justified against the geology and actual materials encountered, with fixed controls and repeatable soil, water, sediment or ambient-gamma methods where relevant.

Ground and surface condition. Soil sampling alone will not provide a repeatable baseline for topography, settlement, cracks, altered drainage, wet ground, ponding, erosion or vegetation change. Fixed photography and surveyed levels should be established before construction and retained through operation, restoration and aftercare.

4. Monitoring, receptor coverage and reporting must operate as one system

The application contains useful domain-specific provisions. The unresolved issue is whether those provisions collectively cover the material pathways and receptors that matter, preserve short-lived evidence, and require combined signals to be assessed together rather than closed separately within individual plans or regulatory remits.

Domain	Current provision	Minimum unresolved safeguard
Air and emissions	Passive tubes, brief grab samples, a short mobile methane survey, process assumptions and meteorology during selected sampling.	Complete source inventory; continuous meteorology; high-time-resolution methane/H2S and risk-based VOC/PM coverage; event-triggered sampling; actual source and operating correlation.

Domain	Current provision	Minimum unresolved safeguard
Groundwater and surface water	Three proposed shallow boreholes; ditch-water controls; no routine site discharge.	Affected and control receptors beyond the ditch; seasonal baseline; event-triggered paired sampling; conceptual-model revision criteria; linked rainfall, level and chemistry records.
Seismic and well integrity	PO 08 promises local seismic monitoring; HSE/NSTA oversee well and seismic controls.	Performance-based network design, detection completeness, location uncertainty, strong-motion coverage, trailing-event rules and automatic propagation to environmental review.
Waste and material flow	On-site containment, licensed carriers and permitted treatment/disposal routes.	Named receiver and waste acceptance; treatability; cradle-to-grave mass balance; treatment residuals; final discharge/fate; no evidential break at the site gate.
Vehicles and mobile equipment	Wheel washing is identified principally as a construction-dust control.	Clean/dirty zoning; incident quarantine and trace-back; contained underbody/wheel-arch decontamination; wash-water and sludge classification; route clearance.
Noise, vibration and odour	Complaint procedures and operator-led investigation are provided, with later measurement in some circumstances.	Rapid preservation of transient events; one public route and event identifier; operational, meteorological and seismic correlation; defined closure and reopening.
Ground, ecological and radiological condition	Site inspections, soil comparison and operational NORM controls.	Repeatable surface-condition baseline; pathway-oriented checks; off-site report response; integration with water, waste, well and operational records.

Cross-domain escalation. Two or more relevant signals in the same period or location - for example odour plus a methane anomaly, an unexpected pressure response plus a seismic cluster, or bubbling water plus altered chemistry - should trigger one integrated review. Absence of an individual threshold exceedance should not prevent assessment of a coherent multi-domain pattern.

5. Every material pathway and final fate must be made auditable

The revised review treats environmental escape as a material-flow problem rather than a set of separate permit chapters. For every material introduced, encountered or generated, the permit should establish where it can exist, how it can move, what can carry it, what it can become, where it can accumulate and what evidence proves its final fate.

Atmospheric sources. The submitted dispersion modelling is useful, but it represents selected assumed sources. I have not identified a complete process and emissions diagram showing how gas-bearing drilling returns, shale shakers, mud tanks, any degasser or mud-gas separator, tank vents, reliefs and abnormal releases are enclosed, measured, treated or discharged. The selected shrouded flare is expected to exceed 98% combustion efficiency, while the Waste Gas Management Plan acknowledges that its efficiency is more difficult to regulate than an enclosed unit. Nominal performance should therefore be verified using actual gas composition, feed flow, flame status and representative emissions, with every cold-vented quantity recorded.

Greenhouse gas accounting. The same fugitive methane, drilling-return gas and flare-performance uncertainties described above are also relevant to greenhouse gas accounting, because methane has a substantially higher short-term global warming potential than the carbon dioxide produced by its complete combustion. This does not require additional monitoring beyond what is already requested: verifying actual source composition, feed flow, flame status and cold-vented quantity, rather than relying on nominal design performance, closes the air-quality and the greenhouse-gas accounting question together.

Changing receiving sectors. The companion assessment includes a representative daily HYSPLIT trajectory ensemble and a monthly composite. They are not concentration, exposure or deposition maps. Their relevance is methodological: a short release may travel through a relatively narrow corridor, while the downwind sector changes substantially over time. Fixed monitors and four-week averages cannot provide event reconstruction unless pollutant measurements, meteorology and the operating chronology are synchronised.

Off-site water and waste. A licensed carrier and an Environment Agency-permitted receiving facility do not by themselves demonstrate that the facility can treat the actual Cloughton waste or where removed contaminants finally reside. Before transfer, the receiver, permits, waste-acceptance criteria, representative analysis, treatment capability, NORM status, residual streams and final discharge or disposal route should be documented. The mass balance should follow material from generation through storage, loading, delivery, acceptance, treatment, discharge or recovery and secondary waste. Dilution should not be treated as evidence of treatment.

Containment-boundary bypass. Local bunding and a pad-wide HDPE membrane reduce risk, but the application itself relies on the wider pad as tertiary containment when a transfer spill, overflow, connection failure or leak reaches the general surface. Any surface credited with receiving a release is also a possible contact surface for tyres, tracks, wheel arches, underbodies, crane feet, stabilisers, hoses, tools, footwear and removable equipment. A dust wheel wash is not equivalent to a controlled chemical, saline, hydrocarbon or NORM decontamination system.

Natural, engineered, mobile and cross-phase pathways. The register should include the well, casing, cement and annuli; faults and fractures; permeable strata; drains, ditches, sumps, pipework and tanker connections; vehicles, equipment and people; off-site treatment; and transformations such as dissolved gas exsolving, liquid becoming aerosol, radium accumulating in scale or sludge, or dried residue becoming dust. A contaminant should not disappear from the assessment because it changes phase, follows an engineered route, travels on an object, or crosses into another permitted facility.

6. Fault, well-integrity, fracture and seismic monitoring must remain reviewable

The draft decision and PO 08 require a later fault and stress assessment, induced-seismicity assessment, injection programme, fracture-control methods, local seismic monitoring and post-fracturing reporting. That is a useful hold point, but the consulted package does not yet specify the monitoring objective, number and geometry of stations, surface or downhole instrumentation, baseline period, minimum detectable magnitude, catalogue completeness, event location uncertainty, strong-motion coverage, processing latency, traffic-light criteria, trailing-event period, restart rules or publication arrangements.

The stimulation is described as a proppant squeeze of 300–500 m³ per stage across up to four stages, an estimated maximum total of approximately 2,000 m³. Both figures fall below the volume thresholds in sections 4A and 4B of the Petroleum Act 1998 (inserted by section 50 of the Infrastructure Act 2015) that define “associated hydraulic fracturing” and trigger the Government’s current moratorium. The operation is accordingly outside the moratorium’s scope as a matter of law, notwithstanding descriptions of the technique elsewhere as small-scale or “stealth” fracking. That statutory classification is not disputed here, and it does not by itself establish that the fault-interaction and induced-seismicity risks addressed in this section are reduced: the volume threshold does not vary with local fault geometry, in-situ stress or induced-seismicity history. The adequacy of the seismic monitoring architecture required under PO 08 should be assessed on its technical merits, independent of the regulatory label attached to the stimulation volume.

Preston New Road used a layered surface, downhole and ground-motion monitoring system. Cloughton does not need to reproduce that exact array, but it should demonstrate equivalent or better capability for the behaviours relevant to this site: distinguishing induced events from background, locating fault activation, constraining fracture development, measuring actual ground motion and identifying delayed activity after pumping stops.

Seismic and well signals must also be capable of reopening environmental assumptions. A pressure anomaly, unexpected loss or gain, casing or cement concern, seismic cluster, groundwater change or surface report may be individually below a specialist threshold while materially significant in combination. The permit should define when information held by the NSTA or HSE is automatically propagated into Environment Agency review and when environmental monitoring is redesigned to test the newly plausible pathway.

7. Assurance, investigation and closure must remain distinguishable

For every reported anomaly, the retained record should show what was reported; location and timing; who held evidential responsibility; whether the response comprised acknowledgement, attendance, measurement, sampling or technical assessment; what existing assurance was relied upon; whether it was spatially, temporally and methodologically matched to the event; what remained untested; the basis for closure; and the conditions for reopening.

Qualifying events should preserve one synchronised record of operational chronology, flows, pressures, tank levels, alarms, flare status, well and seismic data, meteorology, environmental measurements, waste movements, complaints and sampling. The event should remain open until the material fate, control performance and implications for the conceptual model have been documented.

A single site-specific Accident and Environmental Event Plan should be submitted, published and approved before relevant operations begin. Post-operation monitoring should continue until conditions are demonstrably stable within the established baseline range, or any continuing deviation has been investigated and shown not to represent an unresolved operational effect.

8. Requested permit amendments

1. A baseline hold point preventing site clearance, excavation, drainage alteration, cellar construction and imported fill placement until the relevant soil, groundwater, surface-water, air, ground-condition and radiological baseline arrangements have been approved.
2. Twelve months of groundwater and linked surface-water baseline monitoring before disturbance, unless a published site-specific statistical demonstration shows that a shorter period captures seasonal variability.
3. Publication and an appropriate review opportunity for PO 01, PO 05, PO 06, PO 07, PO 08 and PO 09 submissions, the Agency's technical assessments and any material revision of the assessed risk envelope.
4. A permit-wide monitoring architecture identifying affected and control receptors, detection capabilities, blind spots, analytical limits, event triggers, cross-domain escalation and conceptual-model revision criteria.
5. A complete process-flow, emissions and material inventory covering drilling returns, shakers, mud tanks, gas separation/degassing, vents, reliefs, scrubbers, flare, drainage, tanker connections, emergency routes and off-site destinations.
6. Continuous meteorology and high-time-resolution air monitoring during material phases, with event-triggered speciated sampling and reconstruction using the actual event time, source estimate and operational chronology.
7. Verified flare and vent performance, including feed flow and composition, flame status, stable operating limits, relevant temperature/pressure records, quantified cold venting, commissioning checks and representative emissions verification.
8. A performance-based seismic monitoring plan defining baseline, station geometry, magnitude completeness, location uncertainty, surface/downhole or reasoned equivalent coverage, strong-motion monitoring, real-time triggers, trailing-event controls, restart/abandonment rules, independent verification and publication.
9. Off-site groundwater and surface-water receptor coverage, including relevant drains, ponds, springs and Burniston Beck, with paired affected/control and event-triggered sampling.
10. No formation water, flowback or contaminated wash water to leave the site until a named receiving facility has accepted representative analysis against its permits, waste-acceptance limits and treatment capability.
11. Cradle-to-grave mass balance for gas, liquids, solids, NORM and treatment by-products, reconciling generation, storage, loading, delivery, acceptance, treatment, discharge/recovery, residuals and final fate.
12. Defined clean and dirty zones and a contained final-exit decontamination system for vehicles and mobile equipment, with incident quarantine, trace-back, segregated wash water/residues and documented route clearance.
13. A regulator-approved material-flow and pathway register covering natural, well-related, engineered, mobile, off-site and cross-phase pathways.
14. A proportionate pre-disturbance radiological baseline and decision rule for representative gas, water, soil, sediment, scale, sludge and event-triggered radionuclide assessment where relevant.
15. A repeatable photographic and surveyed baseline for ground level, drainage, wet ground, cracks, settlement, ponding, erosion and vegetation condition.
16. One public reporting route and common event identifier for air, odour, water, waste, noise, vibration, seismic, ground, ecological and radiological observations, with defined response and cross-authority referral times.
17. Prompt preservation and proportionate investigation of transient evidence, with records distinguishing acknowledgement, attendance, measurement, sampling, technical assessment, closure and reopening.
18. Submission, publication and approval of one site-specific Accident and Environmental Event Plan before relevant operations commence.
19. Defined permit-reopener, suspension, variation and restart triggers, plus a minimum aftercare period and objective extension/cessation criteria.
20. Publicly accessible, reusable monitoring and investigation data, retaining timestamps, meteorology, analytical limits, QA/QC, operational context and provenance, together with independent verification of network capability and material post-operation condition.

9. Conclusion

I ask the Environment Agency not to grant the permit in its present form. The application is not devoid of safeguards, and this objection does not claim that contamination, migration, deformation or harm will occur. The difficulty is that the present package does not yet demonstrate an assurance system capable of testing all material source terms, containment interfaces, off-site transfers, transient releases, subsurface signals and final environmental fates on which confidence depends.

The archive and incident-derived review are offered as evidence that environmental failure can arise not only through an obvious breach, but through an incomplete source inventory, nominal rather than verified control performance, averaging that obscures episodes, warning signals that do not force a hold point, responsibility ending at the site gate, or a contaminant changing phase or pathway outside the original detection envelope.

The governing question is therefore: for every material introduced, encountered or generated, where can it exist, how can it move, what can carry it, what can it become, where can it accumulate, and what

measurement proves its final fate? Until the permit and its approved plans can answer that question in an auditable way, the proposed environmental assurance remains incomplete.

Please treat this document as a revised formal objection to the draft decision and include it in the published consultation record.

Daniel Nye
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Primary and supporting documents reviewed

1. Environment Agency, draft decision document and draft permit EPR/YP3623LC/A001, including PO 01-09 and the monitoring tables.
2. Europa Oil & Gas Limited, complete consulted technical package: Environmental Risk Assessment; Waste, Waste Gas and Surface Water Management Plans; Air Quality Assessment and Monitoring Plan; Odour documents; Site Condition Report; Noise and Vibration Assessment; well schematic; chemical and SDS inventories; and site plans.
3. Hafren Water Ltd, Hydrogeological Impact Assessment, report 3729/HIA, final version F3, January 2025.
4. Official Environment Agency, HSE and NSTA guidance and the EU/international technical references identified in the companion standards assessment.
5. D. Nye, Preston New Road: Technical Assessment of Hydrogeological Risk, Monitoring, and Governance Limits, v1.1.1, and the linked monitoring-architecture papers, July-August 2026.
6. D. Nye, Environmental Monitoring and Assurance at the Cloughton 2 Wellsite: Comparative Assessment, v1.1, including its incident-derived source review, 6 August 2026.